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P/4076-13

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Patent Application of

Shu Chuen HO et al.

Serial No.: 09/901,517

Filed: July 9, 2001

For: MOLD

Date: April 9, 2003

Group Art Unit: 1722

Examiner: Timothy W. Heitbrink

Asst. Commissioner for Patents

Washington, D.C. 20231

SUBMISSION

RECEIVED
APR 16 2003
TC 1700

In response to the Office Action mailed January 9, 2003, please reconsider the above-identified application based on the remarks presented herein.

FEE CALCULATION

☒ No Additional Fee is Required

Any additional fee required has been calculated as follows:

☐ If checked, "Small Entity" status is claimed.

NO. OF CLAIMS	PER THIS RESPONSE	PREVIOUSLY PAID FOR	ADD'L CLAIMS	RATE	AMOUNT DUE
TOTAL	9 MINUS	20 * =	0	X (\$9 SE or \$18)	\$ 0
INDEP.	2 MINUS	3 ** =	0	X (\$42 SE or \$84)	\$ 0
FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM				X (\$140 SE or \$280)	\$ 0
* not less than 20 ** not less than 3				TOTAL	\$ 0

If any additional payment is required, a check which includes the calculated fee of \$ _____ (OFGS Check No. _____) is attached.

In the event the actual fee is greater than the payment submitted or is inadvertently not enclosed or if any additional fee during the prosecution of this application is not paid, the Patent Office is authorized to charge the underpayment to Deposit Account No. 15-0700.

CONTINGENT EXTENSION REQUEST

If this communication is filed after the shortened statutory time period had elapsed and no separate Petition is enclosed, the Commissioner of Patents and Trademarks is petitioned, under 37 C.F.R. §1.136(a), to extend the time for filing a response to the outstanding Office Action by the number of months which will avoid abandonment under 37 C.F.R. §1.135. The fee under 37 C.F.R. § 1.17 should be charged to our Deposit Account No. 15-0700.

AMENDMENTS

☐ If checked, amendment(s) to the specification are submitted herewith.

☐ If checked, an amended abstract is submitted herewith.

☐ If checked, amendment(s) to the claims are submitted herewith.

☐ If checked, amendment(s) to the drawings are submitted herewith.

ARGUMENT

Regarding the Objections to the Specification and Drawings:

Applicants respectfully request the Examiner to reconsider and withdraw the objections to the specification and drawings stated in of the outstanding Office Action.

Claim 4 calls for "biasing means to bias the [removable] member into a mold cavity defined by the mold halves". The Examiner has asserted that such a structure is neither disclosed in the specification nor shown in the drawings. This is not correct. In fact, there is a reference to a biasing force acting on the insert in the description relating to every drawing. See, for example:

Page 2 lines 9-10 -- "biasing means to bias the member into a mold cavity";

Page 3, lines 19-22 -- "if a force is applied to top surface 5 of the chip the substrate 2 flexes at the bent sections 4 so that the force on the surface 5 moves the chip 1 downwards";

Page 4, lines 5-11 -- "the force exerted by the insert 8 on the surface 5 causes the substrate 2 to flex";

Page 5, lines 10-14 -- "edge 21 of the insert compresses onto the surface 26 of the die 22";

Page 6, lines 1-4 -- "the insert 39 presses against the upper surface 34 of the chip 30 and the substrate 31 is pressed against the lower mold half 35").

Furthermore, Fig. 1B illustrates the action of the biasing means in the form of the arrow over insert 8, and Figs 2 and 3 illustrate the biasing means implicitly in that inserts 19 and 39 are described as compressible and as pressing onto the upper surfaces of the chip.

In view of the foregoing discussion, it is believed that, upon reconsideration, the Examiner will recognize that the claimed biasing means is supported by the specification, and is shown in the drawings, and accordingly, that the outstanding objections should be withdrawn.

If the Examiner adheres to these objections, he is respectfully requested to suggest suitable amendments.

Regarding the Claims in General:

Claims 1-9 are now pending. Claims 1-6 are before the Examiner, and claims 7-9 directed to the non-elected invention are withdrawn from consideration.

Regarding The Allowable Subject Matter

Applicants note with appreciation the indication that claim 5 would be allowed if rewritten in independent form. Because claim 5 is dependent on claim 1 which is believed to be allowable as explained below, claim 5 has been retained in its original dependent form pending the Examiner's further consideration.

Regarding the Prior Art Rejections:

In the outstanding Office Action, claims 1-4 and 6 were rejected as anticipated by Sakurai U.S. Patent 6,435,855 (Sakurai). Applicants respectfully submit that this rejection is improper, and respectfully request that it be withdrawn.

Claim 1 recites:

A mold comprising two mold halves, one of the mold halves comprising a contact section which is adapted to contact a surface of a semiconductor chip mounted in the mold, in use.

Sakurai's ejection pins 3, which the Examiner equates to the claimed contact section, are clearly never in contact with a surface of the semiconductor chip p. On the contrary, Sakurai expressly states his intention to limit the protrusion of the ejection pin 3 "such that an outer peripheral edge portion 32 of the front end portion 31 of the ejection pin 3 is strictly aligned in level with an inner wall surface 22 of the molding space." (see Col 6, lines 18-26). Contact between the ejection pin and the surface of the semiconductor chip would be entirely contrary to this teaching.

That ejection pins 3 do not contact a surface of the semiconductor chip p, but only have limited contact with the molding compound m which surrounds the semiconductor chip, is also apparent from comparison of Fig. 3A of the patent, which shows projection of pins 3 into molding space 21, but no contact with chip p, and Fig. 3B, which shows indentations from pins 3 only in the top and bottom surface of the molding compound. These indentations do not extend through to the chip, as they would if the pins extended far enough to contact the chip.

From the foregoing, it should be apparent that Sakurai does not anticipate claim 1.

Claims 2-4, and 6 are dependent on allowable claim 1, and are therefore allowable for the reasons stated above. In addition, these claim recite features which, in combination with the features of their respective parent claims are neither taught nor suggested in the Sakurai patent.

In view of the foregoing, favorable reconsideration and allowance of this application are respectfully solicited.

I hereby certify that this correspondence is being deposited with the United States Postal Service with sufficient postage as First Class Mail in an envelope addressed to: Asst. Commissioner for Patents, Washington, D.C. 20231, on April 9, 2003:

Lawrence A Hoffman
Name of applicant, assignee or
Registered Representative
Lawrence A Hoffman
Signature
April 9, 2003
Date of Signature

LAH:sks

Respectfully submitted,

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